

to nothing save the admission of the undisputed fact that the tides are due to the disturbing force of the moon or sun.

He makes the unique assumption that, since a land mass may permanently raise the sea level along the shore above a height which it would otherwise occupy, the tides are due to the moon's tidal forces acting alternately with and against this constant attraction of the land mass upon the adjacent waters. How the permanent attraction of nearby-land masses comes into the periodic ebb and flow of the tide, is not made clear. This continental attraction is assumed to be lessened when the moon is on the meridian and to assume its undisturbed value when the moon is in the horizon. In other words, he imagines the vertical, rather than the horizontal, component of the moon's attraction to produce the tides, and that the vertical force vanishes when the moon is in the horizon; that these assumptions are errors, is too well known to require further notice.

Finally appeal is made to barometric readings for establishing the truth of this unique tidal hypothesis. He finds the greatest range of the barometer to occur soon after the time when the moon is near quadrature, and the least, soon after syzygy. This state of affairs may possibly exist at some places, because the atmospheric lunar tides are difficult to understand, and their small range, as measured by the barometer, renders them difficult to measure. But, according to observations made at Singapore, Batavia, and St. Helena the maximum height of the lunar fluctuation in the barometric pressure occurs when the moon is on the meridian or a little later. Now the large fluctuation in the barometer follows the period of the solar day, and, using the value given by Mr. Elson, the maximum height occurs at about 10 a. m. and 10 p. m. The maximum range should, therefore, occur on those days when the moon crosses the meridian at about 10 o'clock and not when she crosses the meridian at 6 or 7 o'clock, or on the days of neap tides.

On the whole, we think that Mr. Elson, who is well known in India, has not made his suggestions acceptable to those who have given much attention to the tides and tidal theories.—*R. A. H.*

METEOROLOGICAL COURSE AT WILLIAMS COLLEGE.

In the REVIEW for March, 1904, p. 517, we gave the first part of the syllabus of the course of lectures by Prof. Willis I. Milham, on meteorology, during the current year at Williams College. The rest of this syllabus will be equally helpful to those who are giving similar instruction at other colleges, and is published herewith from the manuscript that is given to the students as a synopsis of his method of treating the subject.—*C. A.*

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CORRIGENDA.

The numbers of the charts "XXXIII-51, Chart XI," and "XXXIII-52, Chart XII," should be transposed.

THE WEATHER OF THE MONTH.

By Mr. P. C. DAY, Acting Chief, Division of Meteorological Records.

PRESSURE.

The distribution of mean atmospheric pressure is graphically shown on Chart VIII and the average values and departures from normal are shown in Tables I and V.

The normal distribution of atmospheric pressure over the United States and Canada for April shows well-marked transitional conditions from the winter types of pressure to those of summer. Over the north Pacific coast, and extending into British Columbia, the summer type of high pressure has become well established by the end of April; the low over the Southwest has intruded northward and eastward far into the Rocky Mountain and western plains region. The continental winter type of high pressure, covering the Rocky Mountains and western plains, has gradually drifted eastward and covers the region from the Lakes northward toward Hudson Bay and southward to the Gulf, the ridge of highest pressure lying between the meridians of 80° and 85° and diminishing by gentle gradients eastward and westward. This shifting of the positions of the areas of high and low pressure gives to New England and the States surrounding the Lakes, prevailing northerly winds, and winter conditions still predominate, but with much diminished energy.

Under the influence of the extensive low covering the southern Rocky Mountain region and extending into Texas, Oklahoma, and Kansas warm southerly winds prevail over this section and summer conditions are fairly well established.

Over the northern Rocky Mountain and north Pacific region under the influence of the high pressure approaching from the Pacific coast warm southerly winds prevail.

During the current month the interior high area receded from the advanced eastward position it occupied during March and the center of high pressure over the Dakotas was far to the west and north of its normal position.

The northward extension of the low over the Gulf of California was considerably retarded and the north Pacific high had intruded but slightly beyond the coast line of Washington and Oregon.

Over the entire eastern slope of the Rocky Mountains and from central Texas northward the pressure was above the normal.

East of the above limits the pressure was everywhere below the normal, attaining a maximum negative departure of from .15 to .25 of an inch over New England, eastern Ontario, Quebec, and the Maritime Provinces of Canada.

West of the Rocky Mountains the pressure was also lower than the average, except over extreme northwestern Washington.

The normal pressure for April shows a uniform reduction from that of March over the entire United States and Canada,

except from central Oregon and Washington westward and northward into British Columbia, and over the St. Lawrence Valley, and Maritime Provinces of Canada, where slight increases are noted.

During the current month the pressure diminished from that of March throughout all sections, except over the upper Missouri Valley, the north Pacific coast, and the British Northwest Territories.

TEMPERATURE OF THE AIR.

As a result of the retardation of the eastward drift of the interior high pressure area, cool northerly winds prevailed south and east of the Dakotas, and temperatures were, therefore, below the normal from the Lakes southward to the Gulf and west to the Rocky Mountains and into New Mexico and Arizona.

North of the high pressure area southerly winds and temperatures above the normal prevailed as far north as the field of observation extends.

The average temperatures for the several geographic districts and the departures from the normal values are shown in the following table:

Average temperatures and departures from normal.

Districts.	Number of stations.	Average temperatures for the current month.	Departures for the current month.	Accumulated departures since January 1.	Average departures since January 1.
		°	°	°	°
New England	8	43.3	+ 0.4	- 7.7	-1.9
Middle Atlantic	12	51.3	+ 0.9	- 7.9	-2.0
South Atlantic	10	62.4	+ 0.5	- 8.6	-2.2
Florida Peninsula *	8	71.2	+ 0.7	- 1.6	-0.4
East Gulf	9	65.4	- 0.4	-11.6	-2.9
West Gulf	7	65.9	- 1.1	-11.0	-2.8
Ohio Valley and Tennessee	11	54.8	- 0.6	-11.1	-2.8
Lower Lake	8	43.5	- 1.2	-10.0	-2.5
Upper Lake	10	40.7	+ 0.2	- 5.3	-1.3
North Dakota *	8	40.6	- 1.1	+ 8.3	+2.1
Upper Mississippi Valley	11	50.4	- 0.8	- 7.6	-1.9
Missouri Valley	11	49.4	- 1.5	- 4.7	-1.2
Northern Slope	7	43.3	- 1.3	+ 2.9	+0.7
Middle Slope	6	51.4	- 2.8	- 8.7	-2.2
Southern Slope *	6	57.0	- 3.5	-14.8	-3.7
Southern Plateau *	13	54.5	- 2.0	+ 3.0	+0.8
Middle Plateau *	8	47.6	+ 0.5	+ 9.2	+2.3
Northern Plateau *	12	43.5	+ 1.9	+10.6	+2.6
North Pacific	7	51.2	+ 2.6	+10.7	+2.7
Middle Pacific	5	57.2	+ 1.7	+10.3	+2.6
South Pacific	4	59.4	+ 0.7	+11.5	+2.9

* Regular Weather Bureau and selected cooperative stations.

In Canada.—Prof. R. F. Stupart says:

The temperature ranged from average to 1° and 2° below over the greater portion of Ontario, while elsewhere over the Dominion it was very generally above the average, the most pronounced positive departures being from 3° to 5° in parts of Quebec and New Brunswick, 3° in the northern portions of Alberta and Saskatchewan, 3° on Vancouver Island, and as much as 7° in Cariboo.